REMARKS

Reconsideration is respectfully requested.

Claims 25 and 26-29 have been rejected under 35 USC §112, first paragraph, as containing subject matter not adequately described in the specification. Claims 23 and 25 have been cancelled, and the objected to language no longer is recited in the claims.

It is respectfully suggested that the Yoshimura et al. reference (US Patent No. 6,081,632, hereinafter "Yoshimura"), relied upon for rejecting Claims 18-24, 26, 31, 32 and 34, fails to teach that for which it is relied upon. Reliance in the rejection on Figure 7 and related parts of the description is not well founded. Yoshimura, with respect to Fig. 7 actually does not disclose a waveguide having a bend and a grating structure arranged to guide light of a predetermined wavelength around the bend. Figure 7 discloses a waveguide having a bend, but it does not disclose a grating structure arranged to guide light around the bend. Column 13, lines 10 to 13 refer to the use of a grating in Figure 17 to reflect the writing beam to form a space waveguide.

Yoshimura, in Figures 18 and 19, discloses gratings formed at branches in waveguides for converting multi mode signals to single mode signals or vice versa. For instance, in the second diagram of Yoshimura Figure 18, gratings selectively reflect single wavelength signals into branches from a waveguide. Claim 18 may have been interpreted to cover such a branched arrangement (see Figure 3 of the present application and dependent claim 26). Claim 18 has been amended to exclude such a branched arrangement and to limit the claim to the embodiments of Figures 1 and 2, in which the waveguide has a bend for coupling the light signal around the bend, and additionally includes a grating structure to guide light of a predetermined wavelength around the bend. We have also amended this claim to specify that this reduces the bending losses at the bend. Yoshimura does not disclose any arrangement in which the waveguide itself includes a bend, nor does it disclose the use of an additional grating structure to reduce bending losses. Thus, Claim 18 distinguishes the teaching of Yoshimura.

Independent method claim 34 has been amended to recite a method of reducing bending losses in a photosensitive waveguide. There is no disclosure of any such method in Yoshimura, which only discloses the use of gratings in branched waveguides to selectively reflect certain wavelengths from a multi mode signal, or to single mode signals into a multi

mode signal. There is no discussion in Yoshimura of bending losses in a waveguide having a bend to couple a light signal around the bend, or of using a grating structure to guide light of a predetermined wavelength around the bend to achieve reduced bending losses.

With respect to the feature in claims 18 and 34 that the gratings are formed by UV exposure, Yoshimura fails to specifically describe the recited feature, and is very vague with regard to how the gratings are formed. Many of the parts referred to (e.g., column 10, lines 62 to 67, which are cited against claim 18) do not actually refer to writing gratings but refer to the formation of the waveguide structure. The most pertinent disclosure in Yoshimura appears to be at column 16, lines 56 to 62, which does state that by moving a spot light, a variety of types of optical devices (including gratings) may be formed. This is the type of formation as disclosed in Figure 6 of the present application. Yoshimura therefore does not disclose the use of UV holography as recited in amended Claim 32 and new Claim 37. With regard to claim 32, the Office Action states that it is well known in the art that UV holography is a form of UV irradiation and that the disclosure of Yoshimura is equivalent to UV holography. It is respectfully suggested that this is not the case. Holography involves the writing of grating by utilizing an interference pattern of two beams, which is much more advanced than the simple UV irradiation, as disclosed in Yoshimura. The comments with regard to claim 32 are thus respectfully considered inapposite.

Two new independent claims 38 and 45 have been added, being original claim 22 recast in independent form and a method claim equivalent. With respect to claim 22, the rejection relies on Figure 18 of Yoshimura as disclosing a grating disposed to guide the light in a transmission mode. This is not the case. With reference to the present application, Figure 1 discloses a grating structure disposed to guide light in a transmission mode, whereas Figure 2 discloses a grating structure disposed to guide light in a reflection mode. The difference between the two mechanisms is discussed on page 5, lines 2 to 17 of the specification. In a reflection mode, the grating merely acts as a wavelength selective mirror. In a transmission mode, the grating structure effectively has a photonic band gap preventing the evanescent light from leaking out and resulting in higher efficiency in the light coupled to the output. Thus the mechanism of the two types of grating is different. Yoshimura only discloses the use of gratings in a reflection mode. This is because, in Figures 18 and 19, the gratings are being used as wavelength selective reflectors to separate the multi mode signal into single mode signals having different wavelengths. A transmission mode grating

structure would not perform the same function required in Yoshimura and therefore the substitution of the reflection mode gratings of Yoshimura with transmission mode gratings would not be obvious.

For the above reasons, it is considered that the claims, as amended, find support in the parent application specification as filed, and that the combination of elements recited in the pending claims, as amended, and in new Claims 35-48 distinguish over the references of record. Accordingly, an indication of allowable subject matter is earnestly solicited.

Respectfully submitted,

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June 13, 2003

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